UNCLASSIFIED PROCESSING DATE--11SEP70

2/2 015

CIRC ACCESSION NO--AP0104058

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE STRUCTURE OF THE TITLE COMPD., KAlEDTA.2H SUB2 O, WAS DETD. BY SINGLE CRYSTAL X RAY METHODS. THE ORTHORHOMBIC LATTICE PARAMETERS ARE A 22.89, B 10.18, AND C 6.53 ANGSTROM; Z EQUAL 4; AND THE SPACE GROUP IS P2 SUB 1 2 SUB1 2 SUB1. THE COMPD. IS ISOSTRUCTURAL WITH NH SUB4 COEDTA.2H SUB2 O AND RBCOEDTA.2H SUB2 O. THE Al ATOM IS 6 COORDINATE, BEING SURROUNDED BY 4 O ATOMS AND 2 N ATOMS FROM THE EDTA ION (AL-O EQUAL 1.92-2.01 ANGSTROM, AL-N EQUAL 2.03-2.04 ANGSTROM). THE H SUB2 O MOLS. ARE NOT COORDINATED. MARY FRANCES RICHARDSON.

UNCLASSIFIED

1/2 012 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--POSSIBLE USE OF GLYCINATE COMPLEXES FOR SEPARATING A NEODYMIUM PRASEODYMIUM MIXTURE ON A CATION EXCHANGER -U-

AUTHOR-(03)-ELKHILYALI, A.E., MARTYNENKO, L.I., SPITSYN, V.I.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, SER. KHIM. 1970, (3), 517-21

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--NEODYMIUM, PRASEODYMIUM, RARE EARTH COMPOUND, GLYCINE, ION EXCHANGE, CATION EXCHANGE RESIN

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/0288 STEP NO--UR/0062/70/000/003/0517/0521

CIRC ACCESSION NO--AP0124047
UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--27NOV70

2/2 012

CIRC ACCESSION NO--AP0124047

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ELUTION OF RARE EARTHS FROM CATION EXCHANGE RESIN WAS STUDIED; THE USE OF AQ. GLYCINE FOR ELUTION IS UNSATISFACTORY AS THIS AMINO ACID FORMS COMPLEXES WITH THE RARE EARTHS AND THE RESIN WHICH ARE NOT DESORBED. SEPN. OF RARE EARTHS ALSO CANNOT BE DONE WITH GLYCINE ELUTION IN THE TECHNIQUES OF FRONTAL ANAL. THE EXCHANGE BETWEEN COMPLEXES IN THIS CASE DOES NOT OCCUR IN SOLN. OR ON THE RESIN OWING TO UNFAVORABLE KINETIC FACTOR AND THE SEPN. OF RARE EARTHS APPROACHES ZERO REGARDLESS OF VALUES OF STABILITY CONSTS. OF THE COMPLEXES OF NEIGHBORING RARE EARTHS INVOLVED. FACILITY: MOSK. GOS. UNIV. IM. LOMONOSOVA, MOSCOW, USSR.

UNCLASSIFIED

1/2 017 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--RARE EARTH HYDROXYNITRILOTRIACETATES IN AN AQUEOUS SOLUTION -U-

AUTHOR-(05)-VARLAMOVA, G.L., MITROFANOVA, N.D., MARTYNENKO, L.I., PECHUROVA, N.I., VARLAMOV, V.G.
COUNTRY OF INFO--USSR

SOURCE--ZH. NEORG. KHIM. 1970, 15(5), 1239-43

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--RARE EARTH COMPOUND, ACETATE, COMPLEX COMPOUND, LANTHANUM COMPOUND, CESIUM COMPOUND, YTTRIUM COMPOUND, IONIC BONDING, POTENTIOMETRIC TITRATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3008/0947 STEP NO--UR/0078/70/015/005/1239/1243

CIRC ACCESSION NO--AP0137975
UNCLASSIFIED

1/2 010 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--EFFECT OF CITRIC ACID ON THE EXCHANGE BY RARE EARTH IONS BETWEEN A CATION EXCHANGER AND A SOLUTION OF ETHYLENEDIAMINETETRAACETIC ACID, EDTA
AUTHOR-(03)-MARTYNENKO, L.I., SPITSYN, V.I., ARTYUKHINA, G.A.

COUNTRY OF INFO--USSR

SOURCE--ZH. NEORG. KHIM. 1970, 15(4), 931-4

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CITRIC ACID, RARE EARTH METAL, CATION EXCHANGE RESIN, NEODYMIUM, PRASEODYMIUM, HOLMIUM/(U)KU2 CATION EXCHANGE RESIN

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3004/2018 STEP NO--UR/0078/70/015/004/0931/0934

CIRC ACCESSION NO--AP0132279
UNCLASSIFIED

2/2 017 UNCLASSIFIED PROCESSING DATE--04DEC70
CIRC ACCESSION NO--AP0137975
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. COMPN. AND STABILITY CONSTS. (K) OF HYDROXYNITRILOTRIACETATE COMPLEXES OF IONS OF THE LA TO LU RARE EARTH ELEMENTS AS WELL AS Y AND CS WERE STUDIED. BY POTENTIOMETRIC METHOD AT 20DEGREES AND IONIC STRENGTH OF 0.2. THE VALUE OF K (TIMES 10 PRIME NEGATIVE5) RANGES FROM 1.17 FOR LA TO 73.94 FOR LU. FACILITY: MOSK. GOS. UNIV. IM. LOMONOSOVA, MOSCOW, USSR.

UNCLASSIFIED

2/2 010 UNCLASSIFIED PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0132279

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DISTRIBUTION COEFFS. (ALPHA) FOR NO-PR AND ER-HO MIXTS. WERE DETD. IN A SYSTEM OF CATION EXCHANGE RESIN KU-2 WITH EDTA, CITRIC ACID (H SUB3 CIT), OR THEIR MIXTS. IN THE PRESENCE OF H SUB3 CIT, THE VALUE OF ALPHA REACHES ITS HIGHEST (EQUIL.) VALUE VERY QUICKLY. IN EDTA SOLN., THE EQUIL. WAS REACHED MORE SLOWLY. FAVORABLE DIFFUSIONAL PROPERTIES OF CITRATES ARE RESPONSIBLE FOR FASTER ACHIEVEMENT OF EQUIL. IN H SUB3 CIT THAN IN EDTA SOLNS. IT IS ASSUMED THAT, IN EDTA-H SUB3 CIT AND IN H SUB3 CIT SOLNS., THE RATE DETG. STEP IS THE SAME AND IT INVOLVES PENETRATION OF NEUTRAL COMPLEXES (WHICH FORM AT PH3-3.2) INTO THE RESIN. FACILITY: MOSK. GOS. UNIV. IM. LOMONOSOVA, MOSCOW, USSR.

UNCLASSIFIED

1/2 011 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--SPECTROGRAPHIC STUDY OF NEODYMIUM CITRATES IN AN AQUEOUS SOLUTION

-U-

AUTHOR-(03)-ARTYUKHINA, G.A., MARTYNENKO, L.I., SPITSYN, V.I.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, SER. KHIM. 1970, (3), 522-5

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--NEODYMIUM COMPOUND, CITRIC ACID, SPECTROSCOPY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1997/1510 STEP NO--UR/0062/70/000/003/0522/0525

CIRC ACCESSION NO--AP0120291

UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002201930005-9"

2/2 011 UNCLASSIFIED PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0120291

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SPECTROGRAPHIC AND POTENTIOMETRIC DATA WERE USED TO REVEAL 2 FORMS OF CITRATES OF COMPN. ND(CIT), ND(CIT) SUB2 PRIME3 NEGATIVE AND ND SUB3 (CIT) SUB3 (OH) SUB4 PRIME4 NEGATIVE IN TITRN. OF NDCL SUB3 WITH CITRIC ACID (H SUB3 CIT). THE MONOCITRATE HAS A STABILITY CONST. THAT RANGES FROM 1.13 TIMES 10 PRIME8 TO 0.67 TIMES 10 PRIME8 WHEN THE CONCN. OF NDCL SUB3 IS VARIED FROM 0.03M TO 0.005M.

FACILITY: MOSK. GOS. UNIV. IM. LOMONOSOVA, MOSCOW, USSR.

UNCLASSIFIED

1/2 011 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--COMPOSITION AND STABILITY OF A MIXED COMPLEX FORMED BY NEODYMIUM WITH EHTYLENEDIAMINETETRAACETIC AND TARTARIC ACIDS -U-

AUTHOR-(04)-DOBRYNINA, N.A., MARTYNENKO, L.I., AGEYEVA, L.V., SPITSYN, V.I.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, SER. KHIM. 1970, (2), 477-9

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--COMPLEX COMPOUND, NEODYMIUM COMPOUND, ETHYLENEDIAMINE, ACETIC ACID, TARTARIC ACID, SPECTROMETRIC ANALYSIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1997/0647 STEP NO--UR/0062/70/000/002/0477/0479

CIRC ACCESSION NO--AP0119559

UNCLASSIFIED

2/2 011 UNCLASSIFIED PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0119559

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SPECTROMETRIC STUDY OF THESE SYSTEMS OF NDCL SUB3 IN VARIOUS PROPORITONS SHOWED THAT A MONOTARTRATE OF ND WITH FORMULA NDZ PRIME POSITIVE IS FORMED, THE PK OF STABILITY CONST. BEING 4.66. IN A SYSTEM CONTG. TARTARIC ACID (H SUB2 Z) AND THE DI-NA SALT OF EDTA (H SUB4 A), A MIXED COMPLEX IS FORMED WITH COMPN. OF NDAZ PRIME3 NEGATIVE AND STABILITY CONST. 1.03 TIMES 10 PRIME2.

FACILITY: MOSK. GOS. UNIV. IM. LOMONOSOVA, MOSCOW, USSR.

UNCLASSIFIED

1/2 022 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--HEAT CAPACITY OF POLYVINYL CHLORIDE, DIOCTYL PHTHALATE AND POLYVINYL CHLORIDE, DIBUTYL PHTHALATE SYSTEMS -U-

AUTHOR-(04)-MARTYNENKO, L.YA., RABINOVICH, I.B., OVCHINNIKO , YU.V., MASLOVA, V.A.

COUNTRY OF INFO--USSR

SOURCE--VYSOKOMOL. SOEDIN., SER. A 1970, 12(4), 841-8

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ENTROPY, THERMODYNAMICS, POLYVINYL CHLORIDE, PHTHALATE, HEAT CAPACITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3006/1381 STEP NO--UR/0459/70/012/004/0841/0848

CIRC ACCESSION NO--AP0135055

UNCLASSIFIED

2/2 022 UNCLASSIFIED PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0135055

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. HEAT CAPACITY MEASUREMENTS CONDUCTED WITH MIXTS. OF POLY(VINYL CHLORIDE) (I),DIOCTYL PHTHALATE (II) AND I,DI,2U PHTHALATE (III) AT 60-360DEGREESK INDICATED THAT THE SYSTEMS WERE MACROSCOPICALLY UNIPHASIAL. II AND III OCCURRED IN LIQ. AND VITREOUS STATES. AN EQUATION WAS DERIVED TO ACCOUNT FOR A DECLINE IN THE GLASS TRANSITION TEMP. AS A FUNCTION OF THE ESTER CONTENT. THE GLASS TRANSITION TEMP. AS A FUNCTION OF THE ESTER CONTENT. THE GLASS TRANSITION INTERVALS, HEAT CAPACITY, AND ENTROPY INCREMENTS (OF TRANSITION FROM THE LIQ. TO THE VITREOUS STATE) DEPENDED ON II AND III CONTENTS. THE BASIC THERMODYNAMIC FUNCTIONS WERE DETD. BY GRAPHICAL INTEGRATION. FACILITY: NAUCH.-ISSLED. INST. KHIM., GOR'K. GOS. UNIV. IM. LOBACHEVSKOGO, GORKI, USSR.

UNCLASSIFIED

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USSR

UDC: 548.5

FESENKO, Ye. G., GAVRILYACHENKO, V. G., SPINKO, R. I., MAR-TYNENKO, M. A., GRIGOR'YEVA, Ye. A., FERONOV, A. D., Rostov State University

"Growth of Lead Titanate Crystals and Investigation of Their Domain Structure"

Moscow, Kristallografiya, Vol 17, No 1, Jan/Feb 72, pp 153-157

Abstract: A method is described for growing laminar $PbTiO_3$ crystals in the $PbO-TiO_2-B_2O_3$ system, and the results of a study of the domain structure by the optical method and the method of etching are presented. In numerous experiments on crystal growing in this system, it was found that lead titanate sometimes crystallizes in the form of transparent plane-parallel plates with a perfect {100} face. Experiments showed that the yield of perfect laminar crystals depends on the temperature gradient with respect to height in the melt, and the cooling rate. The optimum conditions are less than

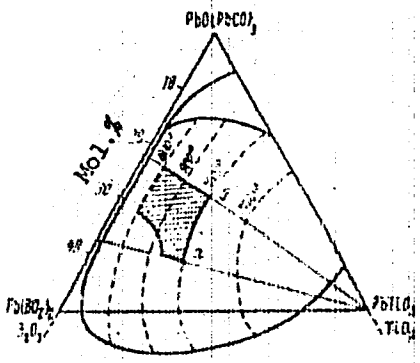
USSR

FESENKO, Ye. G. et al., Kristallografiya, Jan/Feb 72, pp 153-157

20 deg/hr for the cooling rate, and less than 20 deg/cm for the vertical temperature gradient with an approximate ratio of 1:1 between these parameters. The region of laminar crystal growth is shown by the shaded portion on the phase diagram. It was found that observation of optimum conditions gives fairly large crystals (up to 1.5 cm^2) with thicknesses from 10-15 μ to 1-1.5 mm. The domain structures of the crystals are classified. Etching figures are shown which correspond to 180° domain configurations, as well as to large monodomain regions with stable antiparallel domains in the surface layer. Some of the particulars of the phase transition are discussed. Four figures, bibliography of eighteen titles.

USSR

FESENKO, Ye. G. et al., Kristallografiya, Jan/Feb 72, pp 153-157



Phase diagram of the $PbO-B_2O_3-TiO_2$ system and the region of laminar crystal growth (shaded area)

3/3

1/2 015 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--SPONTANEOUS POLARIZATION AND COERCIVE FIELD OF LEAD TITANATE -U-

AUTHOR-(04)-GAVRILYACHENKO, V.G., SPINKO, R.I., MARTYNENKO, M.A., FESENKO, YE.G.
COUNTRY OF INFO--USSR

SOURCE--FIZ. TVERD. TELA 1970, 12(5), 1532-4

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY, PHYSICS

TOPIC TAGS--LEAD COMPOUND, TITANATE, ELECTRODE, CURIE POINT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3003/0161 STEP NO--UR/0181/70/012/005/1532/1534

CIRC ACCESSION NO--AP0129417
UNCLASSIFIED

2/2 015 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0129417

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SPONTANEOUS POLARIZATION, P SUBS EQUALS 75 MICROCOULOMBS-CM PRIME2 AND THE COERCIVE FIELD, E SUB0 EQUALS 6.75 KV-CM. ON REPOLARIZATION IN STRONG FIELDS, ALPHS DOMAINS ARE FORMED, WHICH SPREAD PROGRESSIVELY OVER THE ENTIRE SURFACE OF THE ELCTRODE. THE TEMP. DEPENDENCE OF SPONTANEOUS POLARIZATION SHOWS THAT WITH INCREASING HEATING, P SUBS DECREASES MONOTONICALLY TO SIMILAR TO 50PERCENT OF ITS VALUE AT ROOM TEMP., AND AT THE CURIE POINT THE JUMP IS 40 MICROCOULOMBS-CM PRIME2. FACILITY: ROSTOV.-NA-DONU GOS. UNIV., ROSTOVON DON, USSR.

UNCLASSIFIED

USSR UDC: 539.3

MARTYNENKO, M. D., Belorussian State University imeni V. I. Lenin

"Concerning an Inverse Problem of the Momentless Theory of Shells of Revolution Located in a Temperature Field"

Minsk, Doklady Akademii Nauk BSSR, Vol 16, No 6, Jun 72, pp 499-501

Abstract: The author considers the problem of finding the thickness of a shell of revolution such that a given temperature distribution and load acting in the meridional plane of the shell from the outside do not cause bending stresses. With a single additional assumption relative to the temperature field, the given problem reduces to solution of a nonlinear integro-differential equation. In the absence of a temperature field, an explicit expression is found for the thickness of the shell which guarantees freedom from bending stresses.

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Metrology, Surveying, Mapping, Graphics

UDC 621.438-22:539.319.001.5

USSR

GORSKIY, S. V. and MARTYNENKO, M. Ye.

"An Investigation of Heat Stresses in the Turbine Body of the TKR-11 Turbo Compressor in Unstable Modes of Operation"

Chelyabinsk, Sb. Nauch. Tr. Chelyabinsk. Politekhn. In-ta (Selected Scientific Proceedings of the Chelyabinsk Polytechnical Institute) No. 92, 1971, pp 106-109 (from Referativnyy Zhurnal - Turbostroyeniye, No. 9, Sep 71, Abstract No. 9.49.120)

Translation: The results of an experimental investigation of thermal stresses arising in turbine bodies under conditions close to those of use are given. At the same time the temperature fields are determined more accurately. The measurement of temperature on the surface of the turbine body was done with Chromel (chromium-nickel alloy) - aluminum thermocouples, while deformations were measured with high temperature tensometers. It was determined that significant stresses in the turbine body are not determined by the temperature drop across the thickness of the wall, but are connected with the constraint on the total deformation of the body as a result of the non-uniform distribution of temperature in connected parts (jet nozzle vane rings, central body, etc.). 2 illustrations, 5 bibliographic entries.

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USSR

UDC 533.31.532.542

LYKOV, A. V., KOLESNIKOV, P. M., and MARTYNENKO, O. G.

"Wave Description of Aerothermooptics"

Minsk, Energoperenos v Kanalakh (Energy Transport in Channels) Science and Technology Press, 1970, pp 3-38

Abstract: The article studies the physical characteristics for the focusing and defocusing of laser and light rays using thermal gas lenses. Basic equations for wave thermooptics are given for the fields and the potentials by allowing for the heat fields in them. Two conditions are examined for heating a stationary flow of gas in a cylindrical tube and their optical characteristics. The first is that of a stationary flow in a tube at constant wall temperature, wherein it is found that due to the radial change in density the refractive index of the flow is increased toward the axis of the tube, and consequently the radiational variation in the temperature field in such a tube will result in focusing of the light rays. The second condition is that of a stationary gas flow in a cylindrical tube at a constant density of the heat flux on the wall. In cross section the various temperature profiles are similar and, with an increase in length, the gas temperature increases linearly. Therefore, it is found to be sufficient to represent the temperature variation

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002201930005-9"

USSR

LYKOV, A. V., et al, Energoperenos v Kanalakh Science and Technology Press, 1970, pp 3-38

for the radius and the length. Thus, the flow conditions in the tube with a_c = const will result in the transverse temperature distribution's having a focusing effect on the ray. Solutions are found to the wave equations by using various methods, including those of parabolic equations, perturbations, geometric optics, and other approximation and asymptotic methods. The properties of a light conductor with gas lenses are studied, the theory of light conductors with these lenses being a specific case of the theory of open lines. Here two approaches are possible for constructing the theory, one on the basis of the Helmholtz equation and the other on the basis of the parabolic equation, both of which are given in the article [equations (2.17) and (3.5), respectively]. The symbols used throughout the article are defined at the end, and 73 bibliographic references are cited.

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USSR

MARTYNENKO, O. G., BAYRASHEVSKIY, B. A., GARMIZE, L. KH., SENCHUK, L. A.

"Damping the Rotary Motion of Flow Along a Round Tube under Conditions of Constant Twist of It at the Input"

Minsk, Issled. termogidrodinamich. svetovodov (Thermodynamic Light Guide Research), 1970, pp 123-132 (from RZh-Mekhanika, No 11, Nov 70, Abstract No 11B800)

Translation: Procedures for creating rotary motion of a flow in a cylindrical connecting pipe as a result of twisting of the flow at the inlet were investigated as applied to the problem of improving the operation of the gas lens of a light guide. The dependence of the intensity of the twist on the parameters of the cylindrical coil is revealed for location of it at the walls of the input section of the channel or in the previously included convergence channel section with a degree of constriction n = 5. The flow twisting scheme for tangential approach of the air with a flow rate G_T is estimated for variation of the relative flow

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USSR

MARTYNENKO, O. G., et al, Issled. termogidrodinamich. svetovodov, 1970, pp 123-132

rate in the range of G_T/G_{total} = 0.33-1. It is demonstrated that it is possible to obtain a small twist of the flow which corresponds to the optimal operating conditions both by means of coils and by tangential approach of the air.

2/2

1/2 056 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--TURBULENT ANISOTROPIC FLOW OF INCOMPRESSIBLE GAS IN A CIRCULAR ROTATING TUBE -U-

AUTHOR-(03)-KOLOVANDIN, B.A., MARTYNENKO, O.G., AEROV, V.YE.

COUNTRY OF INFO--USSR

SOURCE--INZHENERNO-FIZICHESKIY ZHURNAL, 1970, VOL 18, NR 1, PP 96-104

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--TURBULENT FLOW, INCOMPRESSIBLE FLUID, GAS FLOW, GAS DYNAMICS, CIRCULAR ACCELERATOR, KINETIC EQUATION, HEAT TRANSFER, VELOCITY, MATHEMATIC ANALYSIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1998/0532 STEP NO--UR/0170/70/018/001/0096/0104

CIRC ACCESSION NO--AP0121204

UNCLASSIFIED

2/2 056 UNCLASSIFIED PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0121204

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. FIG. 1. DISTRIBUTION OF BAR ON IN TUBE SECTION. FIG. 2. DISTRIBUTION OF LONGITUDINAL FLUCTUATION INTENSITY. FIG. 3. INTENSITY DISTRIBUTION OF TRANSVERSE VELOCITY AND SHEAR STRESSES FLUCTUATION. FIG. 4. PROFILE OF AVERAGED VELOCITY. FIG. 5. DISTRIBUTION OF TRANSVERSE HEAT FLUXES. FIG. 6. DISTRIBUTION OF AZIMUTHAL HEAT FLUXES. FIG. 7. DISTRIBUTION OF LONGITUDINAL HEAT FLUXES. FIG. 8. AVERAGED TEMPERATURE PROFILE. SUMMARY. NON ISOTHERMAL FULLY DEVELOPED FLOW OF GAS IN A CIRCULAR ROTATING TUBE IS CONSIDERED. AVERAGE EQUATIONS OF MOMENTUM AND HEAT TRANSFER AND EQUATIONS FOR ONE POINT SECOND MOMENTS OF VELOCITY AND TEMPERATURE FLUCTUATIONS ARE USED. DETERMINED ARE THE BASIC HEAT TRANSFER CHARACTERISTICS SUCH AS THE PROFILE OF AVERAGED TEMPERATURE AND FLUCTUATION HEAT FLUXES. THE RESULTS OF NUMERICAL CALCULATION OF THE CHARACTERISTICS ARE GIVEN.

UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--11DEC70

1/2 023

TITLE--INCREASE IN THE WEAR RESISTANCE OF GRATE BARS -U-

AUTHOR--MARTYNENKO, V.A.

COUNTRY OF INFO--USSR

SOURCE--METALLURG (MOSCOW) 1970, 15(2), 27-8

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--WEAR RESISTANCE, CAST IRON, HEAT RESISTANT ALLOY, CHROMIUM CONTAINING ALLOY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY FICHE NO----FD70/605013/E06 STEP NO--UR/0130/70/015/002/0027/0028

CIRC ACCESSION NO--AP0140413
UNCLASSIFIED

2/2 023 UNCLASSIFIED PROCESSING DATE--11DEC79

CIRC ACCESSION NO--AP0140413

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PROTECTIVE LAYER OF OXIDE FORMED ON CAST IRON OF GRATE BARS WAS DESTROYED BY CORROSIVE GASES FROM AN AGGLOMERATION MACHINE (CO SUB2 14.6, CO 2.5, O 3.4, AND H SUB2 O 50 MG-M)PRIME3. HEAT RESISTANT CAST IRON SS WHICH WITHSTANDS UP TO 600DEGREES, (THE WORKING TEMP. OF GRATE BARS (C 2.1-2.6, SI 0.6-1.4, MN 0.5-1, S 0.04, P 0.04, CR 26-31, NI 2-2.5PERCENT), WAS 140-540DEGREES), AND FORMS A WELL ADHERING PROTECTIVE OXIDE LAYER ON THE SURFACE, WITHSTOOD SERVICE UP TO 24 MONTHS, WHILE CONVENTIONAL CAST IRON WITHSTOOD 1.0-17 MONTHS. IN ADDN. IT IS RECOMMENDED TO LOWER TEMP. OF BOTTOM LAYERS OF AGGLOMERATING CHARGE, BY DECREASING THE AMT. OF SOLID FUEL BY USING GAS BURNERS FOR HEATING THE CHARGE AS WELL AS BY A SUITABLE REDISTRIBUTION OF THE SOLID FUEL ALONG THE HEIGHT OF THE CHARGE.

UNCLASSIFIED

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USSR UDC: None

BASOV, N. G., MAL'TSEV, K. K., MARKIN, Ye. P., MARTYNENKO, V. P., ORAYEVSKIY, A. N., PANKRATOV, A. V., SAGITOV, R. G., and SEMCHKOV, A. N.

"Chemical Laser of Mixed Difluoramin With Hydrogen"

Moscow, Sbornik kratkiye soobshcheniya po fizike, No 11, November 1971, pp 3-9

Abstract: This brief communication reports oscillations obtained from oscillatory-rotatory transitions of HF molecules resulting from the reaction of NF_2H with hydrogen, specifically the time variations of the gain yielded by the mixture as a function of the experimental conditions. The experimental equipment consisted of two lasers, an oscillator, and an amplifier, excited by an electrical discharge through the mixture. The oscillator was a quartz tube 85 cm long and 1.7 cm in diameter, with LiF windows set at the Brewster angle. Determinations were made of the optimal relationships between the pressures of the NF_2H and H_2 in the mixture, and a curve is plotted of the energy of the pulse oscillation in the mixture as a function of the ratio of the two pressures. Curves are also plotted for the gain factor in the mixture as a function of time. The authors express their thanks to L. V. Kulakov for his help in plotting the pulse energy spectrum.

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USSR UDC: 533.6.013.42

BORISENKO, V. I., MARTYNENKO, V. S., Kiev

"Experimental Study of Oscillations of an Ellipsoidal Shell Containing a Fluid"

Kiev, Prikladnaya Mekhanika, Vol 6, No 11, 1970, pp 118-121

Abstract: The purpose of this article is the determination of the degree of influence of a fluid on the oscillating frequency of an ellipsoidal shell with a free edge and attached pole. Oscillations with no nodal parallels were studied. It is demonstrated that the fluid contained in such shells can decrease their natural oscillating frequencies by 2-2.5 times. The degree of influence of the fluid increases with increasing filling and decreases with increasing numbers of nodal lines. The influence of the fluid decreases with increasing shell thickness.

USSR

UDC 531.1

MARTYNENKO, YU. G. (Moscow)

"The Wind-Up Acceleration of a Gyroscope With a Noncontact Rotor Suspension"

Moscow, Mekhanika Tverdogo Tela, No 5, 1973, pp 35-40

Abstract: Consideration is given to the wind-up acceleration of the rotor of a gyroscope with a noncontact suspension in a homogeneous rotating magnetic field. In the presence of natural damping in the suspension of a spherical gyroscope by means of aerodynamic suspension, the rotor is brought into rotation by the magnetic field in accordance with the principle of action of an induction motor, and its nutational movements quickly attenuate. The time for bringing the axis of symmetry of the rotor to the axis of rotation of magnetic field is evaluated by means of the method of averaging. An investigation is made of the linear equations of small oscillations of the axis of symmetry of the rotor in the vicinity of the axis of rotation of the field. 9 references.

1/1

UDC 531.1

USSR

KOBRIN, A. I., and MARTYNENKO, YU. G., Moscow

"One Method for Constructing an Asymptotic Solution of the Problem of the Motion of a Gyroscope in a Cardan Suspension"

Moscow, Mekhanika tverdogo tela, No 3, May/Jun 71, pp 40-47

Abstract: The classical nonlinear problem of the motion of a heavy gyroscope in a Cardan suspension is solved by contructing an asymptotic solution of systems of differential equations with a small parameter. The method was proposed by S. A. Lomov in a paper titled "A General Method for the Asymptotic Solution of Differential Equations" (V International Conference on Nonlinear Vibrations, Kiev, 1969). The notation and assumptions are those used in the book by Ye. L. Nikolay (Giroskop v Kardanovom podvese, Moscow, "Nauka", 1964). It is shown that the total and approximate solutions are very close over a finite time interval, with an accuracy up to terms of the order of μ^2.

1/1

1/2 040 UNCLASSIFIED PROCESSING DATE--18SEP70

TITLE--ELECTROSTATIC GYROSCOPE DRIFT CAUSED BY ROTOR ASPHERICITY -U-

AUTHOR--MARTYNENKO, YU.G.

COUNTRY OF INFO--USSR

SOURCE--IZVESTIIA, MEKHANIKA TVERDOGO TELA, JAN-FEB, 1970, PP 10-18

DATE PUBLISHED--------70

SUBJECT AREAS--ELECTRONICS AND ELECTRICAL ENGR., NAVIGATION

TOPIC TAGS--ELECTROSTATICS, GYROSCOPE, GYROSCOPE SYSTEM, ELECTROSTATIC FIELD, DRIFT CURRENT, ELECTRODE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1984/0067 STEP NO--UR/0484/70/000/000/0010/0018

CIRC ACCESSION NO--AP0054865

UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--18SEP70

2/2 040

CIRC ACCESSION NO--AP0054865

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DERIVATION OF EQUATIONS FOR THE MOMENTS ACTING ON AN ELECTROSTATIC GYROSCOPE ROTOR THE AXISYMMETRIC SURFACE OF WHICH IS SYMMETRIAL WITH RESPECT TO THE EQUATORIAL PLANE. TO DETERMINE THE MOMENTS ACTING ON SUCH A ROTOR, THE ELECTROSTATIC FIELD CREATED BY THE ELECTRODES IN THE ROTOR HOUSING IS CALCULATED. IT IS SHOWN THAT THE MOTION OF AN ELECTROSTATIC GYROSCOPE ROTOR IS SIMILAR TO THE MOTION OF A DYNAMICALLY SYMMETRICAL SOLID BODY ABOUT A FIXED POINT IN A FIELD OF THREE NEWTONIAN ATTRACTING CENTERS WHEN THE CENTER OF MASS OF THE BODY COINCIDES WITH THE FIXED POINT AND THE ATTRACTING CENTERS ARE LOCATED FAIRLY FAR FROM THE BODY ON THREE MUTUALLY ORTHOGONAL AXES.

UNCLASSIFIED

MARTYNENKO, Yu. G.

GYROS

CARBL

(2)

SO: JPRS 59651
30 July 73

GYROS

THE DEPENDENCE OF AN ELECTROSTATIC GYROSCOPE'S RUNDOWN TIME ON ROTOR IMBALANCE

[Article by V. P. Danilin, Yu. G. Martynenko, and I. V. Novozhilov; Moscow, Izvestiya Akademii Nauk SSSR: Mekhanika Tverdogo Tela, Russian, No 2, 1970, pp 20-23]

The authors examine the case of an electrostatic gyroscope having a rotor in the shape of a sphere [1,2]. The rotor is located in a housing, the inner cavity of which has had the air evacuated from it. The follow-up system, which provides the rotor suspension, contains devices for the measurement of the rotor's displacement relative to the housing and a system of electrodes that are located on the housing's inner surface. The electrical potentials in the electrodes are formed as a function of the displacement sensors' readings in such a fashion that the suspension has the necessary rigidity and damping ability. When the gyroscope is being readied for use, the rotor is started spinning by an auxiliary system and then, when in operation, spins by inertia. This arrangement provides an unlimited rotor rotation period, since in the ideal case there is no dissipation of the rotor's energy of rotation. The difference between this setup and a real instrument leads to a decrease in the rotor's angular velocity in time, or to rotor "rundown."

In this article, the authors discuss the effect of rotor imbalance on its rundown. It can be expected that imbalance leads to rotor wobble relative to the housing and the dissipation of the rotor's energy of rotary motion by the

MARTYNENKO, Yu. G.

GYROS

CARUL

(1)

SO: JPRS 59651
30 July 73

GYROS:

ELECTROSTATIC GYROSCOPE DEVIATIONS CAUSED BY ROTOR ASPHERICITY

[Article by Yu. G. Martynenko; Moscow, Izvestiya Akademii Nauk SSSR: Mekhanika Tverdogo Tela, Russian, No 1, 1970, pp 10-18]

The author derives expressions for the moments acting on the rotor of an electrostatic gyroscope, the axially-symmetric surface of which is symmetrical with respect to the plane of the equator. On the basis of a few assumptions, he determines the deviations of a gyroscope having a spherical (before torsion) rotor with a finite degree of rigidity.

Let us take note of the fact that one of the causes of electrostatic gyroscope deviations is asphericity of the rotor, which is caused by manufacturing errors, rotation strain, or thermal expansions.

The rotor of an electrostatic gyroscope usually [1-3] consists of a spherical housing in which a vacuum is created. A system of electrodes is fastened to the outer surface of housing S. The rotor's position with respect to the housing is measured by special sensors, the readings from which are used by the follow-up suspension system to change the potentials in the electrodes and provide the force for the rotor's electrostatic suspension [4].

Six of the suspension electrodes form spherical segments or bands, designated by S_k (k = 1,... ...,6), on the sphere's surface, situated at the apices of a regular octahedron [2].

Acc. Nr: AP0043667 Ref. Code: UR 0056

PRIMARY SOURCE: Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, 1970, Vol 58, Nr 2, pp 430-433

BROWNIAN MOTION NEAR THE CRITICAL POINT OF THE TWO-PHASE LIQUID-LIQUID EQUILIBRIUM

V. G. Martynets, E. V. Matizen

Brownian movement of 0.23 micron mean radius particles near the critical mixing point is studied by dark-field microphotography. For a methanol-cyclohexane system the Brownian particle diffusion coefficient decreases by two times when the temperature approaches the critical point from the homogeneous region. The change of the system viscosity in the critical region is calculated. The results are discussed.

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REEL/FRAME
19770071

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UR 0482

Soviet Inventions Illustrated, Section III Mechanical and General
Derwent, 1-70

238941 **TRANSPORTER** with radial pulling-and-carrying ropes 4 and 5 used mainly in mountainous areas. It includes a driving windlass 1, a load-carrying device 2, and a system of drive ropes. In order to reduce the quantity of ropes in use, and to increase the time of service of the ropes, the load carrier is made in the form of a suspension windlass 2 which has a rope-leading pulley 11 with a drive from the pulling-and-carrying rope; the rope is fed from two cylinders of the driving windlass 1. 7.9.67. as 1184757/29-33.
V.D.MARTYNIKHIN. (12.8.69.) Bul.10/10.3.69.
Class 45f. Int.Cl. A01g.

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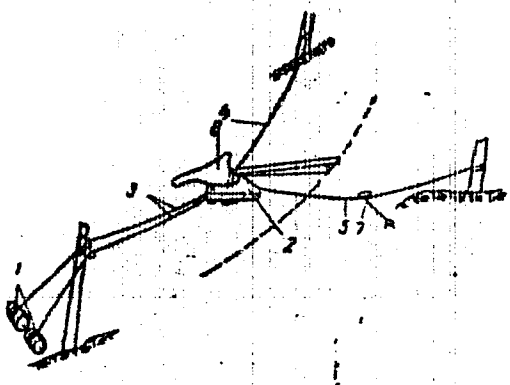

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19781628

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1/2 029 UNCLASSIFIED PROCESSING DATE--02OCT70

TITLE--SIMPLE RELATIONS AMONG HEATS OF EVAPORATION, HEATS OF MELTING, AND ENERGIES OF DISSOCIATION OF DIATOMIC METAL MOLECULES -U-

AUTHOR--MARTYNKEVICH, G.M.

COUNTRY OF INFO--USSR

SOURCE--ZH. FIZ. KHIM. 1970, 44(2), 325-60

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--HEAT OF FORMATION, HEAT OF DISSOCIATION, HEAT OF FUSION, DIATOMIC MOLECULAR, METAL PROPERTY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1987/0863 STEP NO--UR/0076/70/044/002/0325/0330

CIRC ACCESSION NO--AP0104299

UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--02OCT70

2/2 029

CIRC ACCESSION NO--AP0104299

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE HEAT OF EVAPN. DELTA H SUB1 OF A METALLIC ATOM IS RELATED TO THE ENERGY OF DISSOCN. E SUB2 OF THE DIAT. MOL. AND TO THE HEAT OF MELTING E SUBM OF THIS METAL THROUGH THE GENERALLY VALID EMPIRICAL RELATIONS DELTA H SUB1-E SUB2 SIMILAR TO 1.9 AND DELTA H SUB1-E SUBM SIMILAR TO 26. DISSOCN. ENERGIES OF THE DIAT. MOLS. OF 33 METALS ARE TABULATED.

UNCLASSIFIED

USSR

UDC 621.317.761

VITOSLAVSKIY, E. P., VUL'CHIN, Yu. G., IMSHENETSKIY, V. V., MARTYNIV, M. S., and SOLYANKO, B. V.

"UHF Frequency Meter"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No. 33, 1971, p 155

Abstract: This frequency meter contains an electronic counter, tuned oscillators, a mixer, and two AFC circuits. To simplify the circuit and the measuring process, the reference frequency inputs of both phase detectors are connected to the output of one of the time-base divider stages of the counter. The input of this stage is connected to the mixer output.

USSR

UDC 621.373:535

GONCHAROV, V. A., ZVEREV, G. M., MARTYNOV, A. D.

"Effect of Triplet Levels on the Energy Characteristics of Lasers Using Xanthene Dye Solutions Excited by a Laser with Mode Synchronization"

Leningrad, Optika i Spektroskopiya, No 1, 1972, pp 218-219

Abstract: This brief communication deals with the radiation amplitude of lasers using xanthene dye solutions and the pumping of a pulse laser with synchronization of modes, as a function of time. As with pumping by light pulses, the accumulation of molecules in triplet state, especially for solutions with low fluorescence quantum output, leads to losses in transformation efficiency in the pumping process and to premature breaks in the radiation. The laser used in the experiments described in the communication consisted of a solution-filled chamber with plane-parallel walls and a mirror with a reflection coefficient of about 100% at the wavelength generated by the dye; the duration of the pumping was less than the lifetime of the molecules in the first excited singlet state, the interval between pumping dosages being much

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USSR

GONCHAROV, V. A. et al, Optika i Spektroskopiya, No 1, 1972, pp 218-219

larger than the lifetime of phonons in the resonator, which was 1.5 cm long. The authors find that the transition of the excited molecules in the triplet state is a fundamental process affecting the efficiency of the dye laser. A diagram of the experimental equipment is given.

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USSR UDC 621.378.3

BOBROVNIKOV, Yu. A., VERNIGOR, Ye. M., ZVEREV, G. M., LUK'YANENKO, Ye. A., MARTYNOV, A. D., and KHROLOVA, O. P.

"Effective Conversion of the Second Harmonic of a Ruby Laser into Induced Radiation in the 400-470 Millimicron Range in Stilbenyloxazole Solutions"

Minsk, Zhurnal Prikladnoy Spektroskopii, Vol 13, No 2, Aug 70, pp 216-219

Abstract: Results are presented for an experiment conducted to study the laser-induced radiation in alcohol solutions of stilbenyloxazoles. In the experiment a 2.5 Mw ruby-laser beam was focused on the vessel containing the solution. The induced radiation was recorded by means of the ISP-51 spectrograph. The wave length of the induced radiation ranged from 400 to 470 millimicrons. The spectrum width for alcohol is 2.5-3 times that produced in benzene. For all solutions studied the radiation conversion factor is about 20%.

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USSR

UDC 629.78.076.8

BAZHINOV, I. K., IVANOV, N. M., MARTYNOV, A. I.

"Discrete Algorithm for Controlling the Final Launch Velocity of Spacecraft in the Atmosphere of Mars"

Uch. zap. Tsentr. aerogidrodinam. in-ta (Scientific Notes of the Central Aerohydrodynamic Institute), 1972, Vol. 3, No. 4, pp 59-64 (from RZh-41. Raketostroyeniye, No 11, Nov 72, Abstract No 11.41.97)

Translation: A discrete algorithm for controlling the final escape velocity of a space ship in the atmosphere of Mars is discussed, the achievement of which is possible by simple autonomic means. The lift vector is controlled by the change in the angle of roll (i.e., the effective component of the lift force). The algorithm for the control uses the lines of intersection remembered by the on-board computer. Numerical results are given for a calculation of the efficiency of the control algorithm. It is shown that the control algorithm can be used in constructing control systems for the final escape velocity for a wide class of launched craft and for various injection velocities. 4 ill., 4 ref. Resume.

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USSR

UDC 629.78.015.076.8

IVANOV, N. M., MARTYNOV, A. I.

"One Algorithm for Control of the Final Descent Velocity of Automatic Apparatus in the Atmosphere of Mars"

Uch. zap. Tsentr. Aero-gidrodinam. In-ta [Scientific Writings of Central Aero-Hydrodynamics Institute], Vol 2, No 5, 1972, pp 64-72, (Translated from Referativnyy Zhurnal, Raketostroyeniye, No 4, 1972, Abstract No 4.41.131 from the Resume).

Translation: A simple algorithm is suggested for control of the final descent velocity of an automatic apparatus in the atmosphere of Mars, producing the minimum velocity at a predetermined final altitude. Control of the lifting force vector is achieved by changing the effective quality. Numerical results are presented from the estimation of the effectiveness of the algorithm suggested for two hypothetical descent apparatus having identical available quality K_{av} = 0.3, but difference values of adjusted load on the face: P_x = = 80 kg/m^2 and P_x = 250 kg/m^2. 4 Figures; 1 Table; 5 Biblio. Refs.

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USSR

IVANOV, N. M., MARTYNOV, A. I.

"One Algorithm for Control of the Final Descent Velocity of a Spacecraft Into the Atmosphere of Mars"

Uch. zap. Tsentr. Aero-gidrodinam. In-ta [Scientific Writings of Central Aero-Hydrodynamic Institute], Vol 2, No 5, 1971, pp 64-72, (Translated from Referativnyy Zhurnal, Mekhanika, No 4, 1972, Abstract No 4 A64 by V. I. Toloknov).

Translation: An algorithm is suggested for control of the descent of a spacecraft into the atmosphere of Mars, assuring the minimum descent velocity at a fixed altitude. The essence of the algorithm consists in calculation of the longitudinal acceleration while maintaining effective aerodynamic quality with zero bank angle in comparison to the actual acceleration with the calculated value and output of an instruction for motion with zero bank angle when they are equal. The numerical results are presented from an estimate of the effectiveness of the algorithm when random perturbations on the hypothetical landing craft are present with two versions of corrected load on the face. The effectiveness was estimated using the method of B. G. Dostupov.

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USSR

UDC 621.385.623.4:621.3.019.3

GRISHAYEV, I.A., SOKOLOV, V.D., MARTYNOV, A.I.

"Simple Method Of Forecasting Breakdowns Of Power Amplifier Klystrons"

Elektron. tekhnika. Nauchno-tekhn. sb. Elektron. SVCh (Electronic Technology. Scientific-Technical Collection. Microwave Electronics), 1970, Issue 12, pp 126-130 (from RZh--Elektronika i yeye primeneniye, No 4, April 1971, Abstract No 4A164)

Translation: On the basis of an analysis of data from the exploitation of a group of devices, a simple and operative method is proposed for individual prediction of breakdowns of power amplifier klystrons, utilizing little more than data of plant tests reflected in the descriptive documents of devices. The method was checked on 60 devices disabled because of emission loss, and in 75 percent of the cases gave an accurate forecast. 3 ref. Summary.

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natural gas, utilization of silicon semiconducting transformers, introduction of diaphragm electrolytic reduction cells; redesigning of transformers with increased output power from 1,000 to 1,250 kva, and etc.

S. Krivonosova

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USSR

UDC 669.295.008

HARTYNOV, A. N.

"Power Economy and Ways of Reducing Power Cost"

Sb. materialov Vses. seminara energetikov predpriyatiy tsvetn. metallurgii po ekon. elektroenergii (Collection of Transactions of the All-Union Seminar of Electrical Engineers of the Enterprises of Nonferrous Metallurgy on the Question of Power Economy), Moscow, 1970, pp 93-98 (from RZh-Metallurgiya, No 11, Nov 70, Abstract No 11 G145)

Translation: The power requirements of the Bereznikovskiy Titanium-Magnesium Combine are discussed and ways of reducing the power cost are shown. The

UDC 8.74

USSR

MARTYNOV, A. P.

"Dual Estimate Output Subroutine for the Minsk-22 Computer"

V sb. Mat. metody v ekon. issled. (Mathematical Methods in Economics Research — collection of works), Ufa, 1971, pp 60-62 (from RZh-Kibernetika, No 9, Sep 72, Abstract No 9V632)

No abstract

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USSR

UDC: 51

MARTYNOV, A. V.

"Concerning One Generalization of the Method of Possible Directions in Concave Programming"

Tr. Krasnodar. politekhn. in-t (Works of Krasnodar Polytechnical Institute), 1972, vyp. 42, pp 184-194 (from RZh-Kibernetika, No 5, May 73, abstract No 5V634 by S. Lebedev)

Translation: The author considers the problem

$$\max\left\{\sum_{j=1}^{n} f_j(x_j)\,\middle|\,\sum_{j=1}^{n} a_{ij}x_j \leqslant b_i,\ i=1,\ldots,m;\ k_j \leqslant x_j \leqslant d_j,\ j=1,\ldots,n\right\},$$

where the $f_j(x_j)$ are convex upward on $[k_j, d_j]$ and may have points of discontinuity of the derivative. A method of possible directions is written out for this problem in which it is proposed that a problem of the form

$$\max\left[\sum_{j:s_j<0} f_j'(x_j^0)s_j + \sum_{j:s_j>0} f_j(x_j)s_j\right],\quad \sum_{j=1}^{n} a_{ij}s_j \leqslant b_i - \sum_{j=1}^{n} a_{ij}x_j^0,\ i=1,\ldots,m,$$

$$k_j - x_j^0 \leqslant s_j \leqslant d_j - x_j^0,\ j=1,\ldots,n,$$

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USSR

MARTYNOV, A. V., Tr. Krasnodar. politekhn. in-t, 1972, vyp. 42, pp 184-194

be solved on each iteration, where $\underline{f}'_j(x_j^0)$, $\overline{f}'_j(x_j^0)$ are the values of the left and right derivative of the function $f_j(x_j)$ at the point x_j^0.

2/2

USSR

UDC: 51

MARTYNOV, A. V.

"On the Method of Possible Directions for a Nonconvex Separable Target Function With Linear Restrictions"

Tr. Krasnodar. politekhn. in-t (Works of Krasnodar Polytechnical Institute), 1972, vyp. 42, pp 195-213 (from RZh-Kibernetika, No 5, May 73, abstract No 5V632 by Yu. Finkel'shteyn)

Translation: The following problem of mathematical programming is considered:

$$F(x_1, \ldots, x_n) = \sum_{i=1}^{n} f_i(x_i) \to \max, \qquad (1)$$

$$\sum_{i=1}^{n} a_{ji} x_i \leqslant M_j, \quad j = 1, \ldots, m. \qquad (2)$$

It is assumed that conditions (2) define a bounded polyhedron. A special form of the separable target function is first considered where every component is either only convex, or only

1/2

USSR

MARTYNOV, A. V., Tr. Krasnodar. politekhn. in-t, 1972, vyp. 42, pp 195-213

concave, or linear. In the last part of the paper the problem where every component is represented by a finite number of convex, concave or linear parts is reduced to this special case. The proposed algorithms are a development of the method of possible directions to the case of a nonconvex separable target function.

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USSR

UDC: 51

VENGEROVA, G. T., MARTYNOV, A. V.

"The Method of Branches and Boundaries in Nonconvex Programming With Application to the Multiproduct Problem of Inventory Control"

Tr. Krasnodar. politekhn. in-t (Works of Krasnodar Polytechnical Institute), 1972, vyp. 42, pp 160-185 (from RZh-Kibernetika, No 5, May 73, abstract No 5V630 by Yu. Finkel'shteyn)

Translation: The paper deals with a linear programming problem with a nonconvex separable target function and a convex permissible region

$$F(x)=F(x_1, \ldots, x_n)=\sum_{i=1}^{n} f_i(x_i) \to \max, \; x \in G.$$

Two versions of the algorithm of branches and boundaries are used. The paper is closely related to articles by Falk and Soland (RZhMat, 1970, 1V406; 8V358) in which the method of branches and boundaries is applied to problems of the same

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USSR

VENGEROVA, G. T., MARTYNOV, A. V., Tr. Krasnodar. politekhn. in-t, 1972, vyp. 42, pp 160-185

type by constructing convex envelopes for component functions $f_i(x_i)$. In this regard the goal function is required only to be semicontinuous from below for solution of the minimization problem. As pointed out by Falk and Soland, one of the main difficulties of their method is the complexity of constructing a convex envelope for an arbitrary semicontinuous function. The object of this article is to get around this difficulty to some extent by breaking the permissible region up into sections such that construction of envelopes occasions no difficulty. Convex envelopes are readily constructed for convex or concave functions. Therefore it is proposed that the component functions $f_i(x_i)$ be comprised of a finite number of convex, concave or linear segments. This requirement is usually met in practice, or can be satisfied with sufficient accuracy. Besides, in meeting this requirement the rule of weak improvement of Falk and Soland can be used since the conditions of their convergence theorem are satisfied. In the last section a multi-

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USSR

VENGEROVA, G. T., MARTYNOV, A. V., Tr. Krasnodar. politekhn. in-t, 1972, vyp. 42, pp 160-185

product dynamic problem of inventory control is formulated and the possibilities of solving it by the method here proposed are discussed.

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USSR UDC: (621.396.6:621.391.82)089.52

MARTYNOV, B. A.

"The Method of Frequency Distribution for Uniform Radio Facilities Using Digital Computers"

V sb. Radiofiz. i mikroelektronika (Radio Physics and Microelectronics), Voronezh, 1970, pp 35-39 (from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6A251)

Translation: The paper describes a mathematical model of frequency distribution for uniform radio facilities operating in a single frequency band. For each radio facility, the lowest possible tuning frequency is designated from the assigned band for which there is no inadmissible interference in the receivers with frequencies already designated, and no inadmissible interferences are set up in the receiver of the radio facility being considered. The frequency is designated for each subsequent radio facility on the basis of the existing frequency distribution for the preceding radio facilities. A. K.

1/1

1/2 014 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--SYNTHESIS OF PERFLUOROALKYL MERCURY DERIVATIVES VIA PERFLUOROALKYL CARBANIONS -U-

AUTHOR-(04)-DYATKIN, B.L., STERLIN, S.R., MARTYNOV, B.I., KNUNYANTS, I.L.

COUNTRY OF INFO--USSR

SOURCE--TETRAHEDRON LETT. 1970, (17), 1387-8

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--FLUORINATED ORGANIC COMPOUND, MERCURY COMPOUND, CHLORIDE, ORGANOMERCURY COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/0764 STEP NO--UK/0000/70/000/017/1387/1388

CIRC ACCESSION NO--AP0124434

UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--23OCT70

2/2 014
CIRC ACCESSION NO--AP0124434
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. FLUOROOLEFINS CF SUB3 CR:CF SUB2 (R EQUALS F AND CF SUB3), ARE TREATED WITH HGCL SUB2 IN THE PRESENCE OF KF IN HCONME SUB2 TO GIVE BIS(PERFLUOROISOPROPYL)MERCURY AND BIS(PERFLUORO,TERT,BUTYL)MERCURY. PERFLUOROISOPROPYL MERCURY CHLORIDE IS PREPD. FROM CF SUB3 CF:CF SUB2, HGCL SUB2, AND KF IN MEOCH SUB2 CH SUB2 OME.
FACILITY: INST. ORG. ELEM. COMP., MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC: 621.317.069.68

MARTYNOV, B. I.

"Investigation of the Additional Phase Instability of the Output Signal When the Frequency of a Group of Hydrogen Standards is Averaged"

Dokl. Nauchno-tekhn. seminara "Metrologiya v radioelektronike". Tezisy. Ch. 2 (Reports of the Scientific and Technical Seminar on Metrology in Radio Electronics. Summaries. Part 2), Moscow, 1970, pp 31-32 (from RZh-Radiotekhnika, No 7, Jul 70, Abstract No 7A209)

Translation: It is noted that advances made at the All-Union Scientific Research Institute of Physicotechnical and Radiotechnical Measurements as well as in non-Soviet scientific institutions permit a transfer from quartz to hydrogen oscillators as time and frequency standards in spite of the fact that hydrogen standards are lower in reliability than quartz standards. This has occasioned the demand for a new oscillator standby design. Basic data are given on such a design together with some technical results. The resolution of the averaging device utilizing a frequency meter is 10^{-14} per 100 sec. When one oscillator is disconnected from a group of four, the phase of the output signal changes by 0.2°. E. L.

1/1

USSR

UDC 542.61:546.791.6'175

ROZEN, A. M., MARTYNOV, B. V., and ANIKIN, V. I.

"Mechanism of the Extraction of Uranyl Nitrate with Organophosphorus Acids from Nitric Acid Solutions"

Leningrad, Radiokhimiya, Vol 15, No 1, 1973, pp 24-30

Abstract: The mechanism of interaction of uranyl nitrate with di-(2-ethylhexyl) phosphoric acid (I) during extraction of U(IV) from nitric acid solutions with I in CCl_4 was studied. It was shown that the extraction of U(IV) from solutions with HNO_3 concentrations > 2.0 M proceeded by an exchange solvate mechanism with the formation of the mixed complex $UO_2(NO_3)HR_2(HR)_2$, where R is a di-(2-ethylhexyl)phosphate anion. The extraction constant K was 12,000; the pure solvate complex $UO_2(NO_3)_2 \cdot 2HR$ practically did not form. Extraction from weakly acidic solutions (≤ 0.4 M) took place by the ion exchange mechanism $UO_2^{++} + 2(HR)_2 \rightleftarrows UO_2(HR_2)_2 + 2H^+$ ($\lg D = K + 2\,pH$). K was 8100. An equation was derived which makes it possible to determine the distribution coefficient D of U(IV) in the entire range of acidities 0-9 M HNO_3 in the extraction with I. The incorrect conclusions with respect to the composition of the complex extracted at acidities > 2 N that were made by other authors in previously

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USSR

ROZEN, A. M., et al., Radiokhimiya, Vol 15, No 1, 1973, pp 24-30

published work can be ascribed to a disregard of changes in the activity coefficient of uranyl nitrate.

2/2

1/2 016 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--PRINCIPLE FEATURES OF THE ACTION OF RADIOMIMETICS ON THE CONDENSATION AND PROPERTIES OF SUPERMOLECULAR DEOXYRIBONUCLEOPROTEIN

AUTHOR-(03)-MARTYNOV, E.V., SPITKOVSKIY, D.M., TSEYTLIN, P.I.

COUNTRY OF INFO--USSR

SOURCE--RADIOBIOLOGIYA 1970, 10(1), 3-8

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--THYMUS GLAND, NUCLOPROTEIN, ORGNAIC PHOSPHORUS COMPOUND, ORGANIC ACID, IMIDE, AMIDE, X RAY IRRADIATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1998/0476 STEP NO--UR/0205/70/010/001/0003/0008

CIRC ACCESSION NO--AP0121150

UNCLASSIFIED

2/2 016 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0121150

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ACTION OF BETHOXYCAFFEINE (I) AND PHOSPHAZINI DI(ETHYLENEIMIDE),2,PYRIMIDYLAMIDOPHOSPHORIC ACID) (II) ON DEOXYRIBONUCLEOPROTEINS EXTD. IN 0.7M NACL SOLN. FROM CALF THYMUS HAS BEEN EVALUATED. NUCLEOPROTEIN GELS WERE INCUBATED WITH I AND (ORD II (0.001M SOLNS) FOR 24-26 HR AT 4DEGREES. THE LENGTH OF NUCLEOPROTEIN FIBERS FORMED FROM THE PREPNS. PRELIMINARY TREATED WITH II WAS INCREASED BY 10-15PERCENT, WHILE IT WAS DECREASED BY 15-20PERCENT AFTER TREATMENT WITH I, IN COMPARISON WITH CONTROL FIBERS (10 CM). THE TEMP. OF THE TRANSITION OF THE FIBERS FROM THE HIGHLY ELASTIC INTO THE VISCOSE STATE WAS INCREASED TO 60-65DEGREES AFTER TREATMENT WITH I AND DECREASED TO 35-40DEGREES AFTER TREATMENT WITH II (50-55DEGREES IN CONTROL FIBERS). THE EFFECT OF II WAS LESS INTENSIVE IN EXPTS. WITH DEPROTEINIZED DEOXYRIBONUCLEOPROTEINS (N-P RATIO OF 3.2-2.8). II POSSESSED A RADIOMIMETIC ACTION WEAKENING INTERMOL. INTERACTION IN SUPERMOL. DEOXYRIBONUCLEOPROTEIN SYSTEMS. THE PREPNS. DID NOT CHANGE THE STRUCTURE OF INDIVIDUAL MOLS. OF DNA AND DEOXYRIBONUCLEOPROTEIN ACTING IN LOCO WHERE WEAK INTERMOL. BONDS OCCURRED. SYNERGISM OF THE ACTION OF X RAYS AND II WAS NOTED IN EXPTS. WITH DEOXYRIBONUCLEOPROTEINS TREATED WITH I AND 90R) II AND THEN X IRRADIATED WITH A DOSE OF 200 R. FACILITY: INST. EKSP. BIOL. MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 541.183

MARTYNOV, G. A., and IVANOV, I. B., Institute of Physical Chemistry Academy of Sciences USSR, Moscow; Sophia State University

"Statistical Theory of Monomolecular Adsorption. III. Nonlocalized Monomolecular Adsorption"

Moscow, Zhurnal Fizicheskoy Khimii, Vol 47, No 1, Jan 73, pp 135-139

Abstract: The Gursey isotherm was obtained from results of accurate calculations of the statistical integral of an uniform gas. It is accurate at any degree of filling τ. By using this function it was shown that the effect of pseudosaturation at $\tau \approx 0.5$, determined in a previous study, in which the adsorption of solid balls was investigated, is maintained also when attraction forces between the adsorbate molecules are taken into consideration.

USSR UDC 541.183

MARTYNOV, G. A., IVANOV, I. B., LEVINSKIY, B. N., and ANEVA, N. I.

"Statistical Theory of Monomolecular Adsorption. IV. Monomolecular Adsorption on the Crystal Surface"

Moscow, Zhurnal Fizicheskoy Khimii, Vol 47, No 1, Jan 73, pp 140-144

Abstract: Using the Arinshteyn equation, an isotherm of localized Frumkin-Fauler-Guggenheim adsorption was obtained and the limits of its applicability were analyzed. The adsorption on the surface of a real crystal was analyzed and an isotherm was obtained which was correct for the degree of filling $\tau \lesssim 0.2$-0.3. The relationship of τ to the attraction energy between adsorbate-adsorbent, to the ratio of molecular diameter of the adsorbate to the lattice parameters, etc. were studied. It was shown that at $\tau \leqslant 0.2$-0.3 it is practically impossible to distinguish the localized and nonlocalized adsorption on the basis of the adsorption isotherm.

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1/2 027 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--HEATING BLANKS IN ELECTROLYTE DURING TURNING OF HARD TO MACHINE MATERIALS -U-

AUTHOR-(04)-LARIN, M.N., PROKHOROV, V.V., ABINDER, A.A., MARTYNOV, G.A.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, STANKI I INSTRUMENT, NO 3, 1970, PP 22-23

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--METAL MACHINING, BIBLIOGRAPHY, MAGNETIC ALLOY, METAL HEATING, HOT MACHINING, ALLOY DESIGNATION, TITANIUM ALLOY/(U)YUNDK35TS MAGNETIC ALLOY, (U)VT31 TITANIUM ALLOY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1999/1305 STEP NO--UR/0121/70/000/003/0022/0023

CIRC ACCESSION NO--AP0123264

UNCLASSIFIED

2/2 027 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0123264

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A DESCRIPTION IS GIVEN OF A METHOD FOR CUTTING HARD TO MACHINE MATERIALS WITH HEATING IN AN ELECTROLYTE. THE POSSIBILITY OF OXIDATION FREE HEATING OF THIS TYPE OF MATERIALS DURING THE MACHINING PROCESS IS ESTABLISHED. INSTRUMENT STABILITY IS INCREASED 10-20 TIMES IN TURNING THE YUNDK35TS MAGNETIC ALLOY WITH HEATING IN AN ELECTROLYTE AND A CORRESPONDING INCREASE OF 3-10 IS ACHIEVED IN TURNING THE VTZ-1 ALLOY.

UNCLASSIFIED

USSR UDC 612.741

MIKHAYLOV, V. V., MARTYNOV, G. M., ABROSIMOV, V. V., and SERGIYENKO, V. B., Department of Physiology, State Central Institute of Physical Culture, and Biomechanics Sector, All-Union Scientific Research Institute of Physical Culture, Moscow

"Effect of Switching Levels of Functioning of Muscles During Rhythmic Work"

Leningrad, Fiziologicheskiy Zhurnal SSSR, No 8, 1971, pp 1,128-1,133

Abstract: The value of changing levels of muscular activity was studied in 18 athletes during 10 minutes of work on an ergometer bicycle involving two different methods of pedaling (downward and circular) differing in amount of effort involved, rhythmic structure, and distribution of exertions. Analysis of the oxygen demand and tracings of electromyograms of 12 muscles revealed the downward technique to be more efficient than the circular in terms of the energy expended. However, alternating the two methods proved to be more efficient than when either was used alone. Switching levels of functioning of muscles improves the blood flow and thereby prevents the formation of foci of local fatigue.

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USSR

UDC: 51

PUGACHEV, V. F., MARTYNOV, G. V., MEDNITSKIY, V. G., PITELIN, A. K.

"Multistage Optimization With Specific Forms of Local Criterion"

Ekonomika i mat. metody, 1973, 9, No 2, pp 204-217 (from RZh-Kibernetika, No 7, Jul 73, abstract No 7V534 [authors' introduction])

Translation: In RZhMat, 1973, 1V737 a scheme of multistage optimization with local criterion of general form is considered. Using specific forms W, corresponding modifications of the general scheme can be made, computational experiments can be formulated, a comparative analysis can be made, and conclusions of a mathematical and economic nature can be drawn. The paper deals with just this class of problems.

1/1

USSR

UDC 621.376.5

MARTYNOV, I.D., GORODILOV. YU.S., ZALAVSKIY, B.S.

"Device For Selection And Conversion Into Binary Pulses Of The Envelope Of A Voice Signal"

USSR Author's Certificate No 269998, filed 19 Apr 68, published 13 Aug 70 (from RZh--Elektrosvyaz', No 2, February 1971, Abstract No 2.64.126P)

Translation: The circuit is proposed of a device for selection and conversion into binary pulses of the envelope of a voice signal. The device is connected to the output of a rectifier [vypryamitel'] and is made up of a voltage-frequency converter, a valve, and a binary counter, each of the cells of which is connected with the corresponding cell of the unit fixing the binary pulses. It is shown that the proposed device differs from those known by its simplicity and the decrease of distortions. 1 ill. D.B.

1/1

1/2 007 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--OPERATIONAL CALCULATIONS BY MEANS OF THE THEORY OF PROBABILITIES
-U-

AUTHOR-(05)-MARTYNOV, I.M., SOTNIKOV, YE.A., TULUPOV, L.P., KUTYYEV, G.M., SHABALIN, N.N.

COUNTRY OF INFO--USSR

SOURCE--(EKSPLUATATIONNYYE RASCHETY S PRIMENENIYEM TEORII VEROYATNOSTEY) MOSCOW, TRANSPORT, 1970, 238 PP

DATE PUBLISHED--------70

SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR, MATHEMATICAL SCIENCES

TOPIC TAGS--RAILWAY NETWORK, RAILWAY TRAFFIC, PROBABILITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3003/1699 STEP NO--UR/0000/70/000/000/0001/0238

CIRC ACCESSION NO--AM0130569

UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--27NOV70

2/2 007

CIRC ACCESSION NO--AM0130569

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TABLE OF CONTENTS: PREFACE 3. CHAPTER I. ELEMENTARY CONCEPTS OF THE THEORY OF PROBABILITIES 5. II. CERTAIN PROBLEMS IN OPERATION OF RAILROAD STATIONS 47. III. RELATIONSHIP BETWEEN TECHNOLOGICAL INDICES AND PARAMETERS OF EQUIPMENT OF STATIONS 72. IV. THE PROCESS OF ACCUMULATION OF RAILROAD CARS IN THE SORTING YEARD 138. V. USE OF THE THEORY OF PROBABILITIES IN ORGANIZATION OF CAR FLOW AND OPERATION OF RAILROAD JUNCTIONS 164. VI. CERTAIN PROBABILITY RULES IN DAILY FORCAST OF UNLOADING, LOADING AND CHECK OF CARS 195. VII. OPERATIONAL CALCULATIONS BY MEANS OF THE INFORMATION THEORY 312. THE BOOK CONTAINS BRIEF SIMPLE DATA ON THE THEORY OF PROBABILITIES, MATHEMATICAL STATISTICS AND INFORMATION THEORY. GIVEN ARE METHODS FOR THE USE OF INDICATED SECTIONS OF MATHEMATICS IN PLANNING OF OPERATION OF RAILROAD STATIONS, CALCULATION OF PARAMETERS OF THEIR FACILITIES AND OPERATING INDICES. THE BOOK WAS WRITTEN FOR ENGINEERING TECHNICAL PERSONNEL AND SCIENTISTS IN RAILROAD TRANSPORT, AS WELL AS STUDENTS.

UNCLASSIFIED

(2)

USSR

GRITSYNA, V. V., KIYAN, T. S., KOVAL', A. G., FOGEL', Ya. M., SERYUGIN, A. L., MARTYNOV, I. S., Khar'kov State University imeni A. M. Gor'kiy

"Concerning the Mechanism of Luminescence of Polymer Films Which Arises as They are Being Formed Under Ion-Beam Bombardment of Solids"

Moscow, Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol 64, No 1, Jan 73, pp 207-216

Abstract: On the basis of experimental results, the authors suggest a new mechanism for luminescence of polymer films forming on a solid as a result of ion-beam dissociation of hydrocarbon molecules adsorbed on the surface of a bombarded target. It is shown that luminescence of atoms and molecules of helium and neon which arises during bombardment of metal targets by ions of He^+ or Ne^+ is emitted by particles of the corresponding gas located inside hollow spherolites formed during growth of the film under bombardment. The influence of the film temperature on the intensity of the emitted luminescence as well as the change in the nature and intensity of luminescence when there is a change in bombarding beams is explained on the basis of the proposed mechanism of luminescence of polymer films. A mechanism is also proposed for luminescence of polymer films 1/2

(2)

USSR

GRITSYNA, V. V. et al., ZhETF, Vol 64, No 1, Jan 73, pp 207-216

formed on the surface of dielectric targets by ion-beam bombardment. It is assumed that luminescence in this case arises as a result of the excitation of gas which has accumulated in the cavities between the substrate and the polymer film where it is peeling off.

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USSR

ABRAMENKOV, A. D., SERYUGIN, A. L., MARTYNOV, I. S., SLEZOV, V. V., FOGEL', YA. M., Physicotechnical Institute, Academy of Sciences UkrSSR, Khar'kov

"Formation of Islets From Copper Atoms Diffusing Over a Molybdenum Surface"

Leningrad, Fizika Tverdogo Tela, No. 12, Dec 71, pp 3496-3500

Abstract: The results of a direct study of the formation of islets in the diffusion of copper over molybdenum using optical and electron microscopes are presented. The theory of the formation of islets from atoms diffusing over the surface of a substrate was developed by A. D. Abramenkov, et al. According to this theory, based on the assumption that surface defects in the substrate are the locus for the formation of nuclei of islets, the diffusing material is distributed over the surface of the substrate in three zones if the diffusion times are sufficiently large. In zone III, which is furthest from the source of the diffusing material, there occurs only diffusion by atomic jumps from one adsorption point on the surface of the substrate to another. In this zone the concentration of diffusing material is still too low for the formation of nuclei of islets to occur at defects in the substrate surface. In zone II, where the concentration of diffusing material is higher,

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ABRAMENKOV, A. D., et al, Fizika Tverdogo Tela, No. 12, Dec 71, pp 3496-3500

islets from diffusing atoms are generated at defects in the substrate surface, and the dimensions of these islets increase with the course of time. In zone I, which lies next to the boundary of the source of diffusing material, the dimension of the islets reaches a maximum value which does not change with the further passage of time. The general conclusions of the theory of the formation of islets of diffusing material on a substrate surface were verified, and data were obtained on the formation of copper islets on molybdenum which agree quantitatively with the results of theoretical calculations. The agreement between experimental and theoretical values of the size of the islets was good despite certain assumptions made in the calculations. The direct measurement of the average diameter of the islets gave a value of $\sim 10^{-5}$ cm, while a theoretical calculation yielded the value $3 \cdot 10^{-6}$ cm.

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USSR

UDC 547.26'118

KRUGLYAK, YU. L., LANDAU, M. A., LEYBOVSKAYA, G. A., MARTYNOV, I. V., SALTYKOVA, L. I.

"Reaction of O-Imino-O,O-Dialkylphosphites with α-Chloronitroso- and α-Chloronitroalkanes"

Leningrad, Zhurnal Obshchey Khimii, Vol 41, No 10, 1971, pp 2338-2339

Abstract: A series of chemical conversions of O-imino-O,O-dialkyl phosphites (I) were carried out at a temperature in the -10 to 0 degrees, because of known instability of I at a temperature above 0 degrees. Particularly, the typical reactions of trialkyl phosphites with α-chloronitroso- and α-chloronitroalkanes gave, in the case of I, O,O-diimino-O-alkyl phosphites. The structure of the latter was determined by their NMR and IR spectra. The formulas and some physical constants of the prepared compounds are given.

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USSR

UDC 547.21'11

MALEKIN, S. I., SOKAL'SKIY, M. A., KRUGLYAK, Yu. L., and MARTYNOV, I. V.

"Phosphorylated Oximes. X. Reaction of 2-Alkoxy-1,3,2-azaoxaphospholans With α-Chloronitrosoalkanes"

Leningrad, Zhurnal Obshchey Khimii, Vol 42(103), No 2, Feb 72, pp 302-305

Abstract: Dichlorofluoronitrosomethane reacts with 2-alkoxy-1-methyl-1,-3,2-azaoxaphospholans in an Allen type reaction. Depending on the structure of the initial phospholan, the carbon-oxygen bond in the alkoxyl radical is broken, or the bond is broken in the azaoxaphospholan ring. Analysis of the general pattern of the reaction shows that the carbon-oxygen bond in the alkoxyl radical breaks with increasing ease as the number of atoms of carbon in the radical decreases. Since there is only a slight difference in the reactivity of the carbon-oxygen bonds in the alkoxyl radical and the azaoxaphospholan ring, both types of reactions take place simultaneously in some instances.

USSR

UDC 546.185

PRIVEZENTSEVA, N. F., CHELOBOV, F. N., KRUGLYAK, Yu. L., and MARTYNOV, I. V.

"Phosphorylated Oximes. XI. Oximetetrachlorophosphorans"

Leningrad, Zhurnal Obshchey Khimii, Vol 42(103), No 2, Feb 72, pp 305-307

Abstract: Phosphorus pentachloride reacts with dichloroformoxime or dichloroformimine dichlorophosphate to produce dichloroformoximetetrachlorophosphoran. The resultant phosphoran is a mobile liquid which distills under vacuum. The structure of the compound was identified by its IR-, nmr- and mass-spectra as well as by chemical conversions. Dichloroformoximetetrachlorophosphoran is the first representative of oximetetrachlorophosphorans -- intermediate products of the Beckmann rearrangement of ketoximes.

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USSR

UDC 547.26'118

KIRPICHEV, P. P., BAL'CHENKO, R. K., KRUGLYAK, YU. L., MARTYNOV, I. V.

"Reaction of 1,3,2-Dioxaphospholanes With N-Chloroimidoacetic Esters"

Leningrad, Zhurnal Obshchey Khimii, Vol 41, No 10, 1971, p 2338

Abstract: For the first time, a study was made of the reactions of 1,3,2-dioxaphospholanes with N-chloroacetimidic ethyl ester. It was shown that the reactions of 2-halo- or 2-alkoxy-1,3,2-dioxaphospholanes (I), with 0-1 alkyl substituents at the 4 and 5 C positions in the ring, gave open-chain phosphoryl compounds resulting from breaking of the C-O bond in the ring. In contrast, the reactions of I, with more than one alkyl substituent in 4 or 5 positions, gave the dioxaphospholane ring compounds and a haloalkane. The yields and some physical constants of the compounds obtained are given.

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1/2 013 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--REACTION OF O,S,DIALKYL CHLOROTHIOPHOSPHITES WITH ALPHA CHLORONITROSALKANES -U-

AUTHOR-(03)-MARTYNOV, I.V., SHITOV, L.N., MOROVINTSEVA, VE.A.

COUNTRY OF INFO--USSR

SOURCE--ZH. OBSHCH. KHIM. 1970, 40(3), 571-3

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--NITROSO COMPOUND, ALKANE, CHLORINATED ORGANIC COMPOUND, ALKYL PHOSPHITE, PHOSPHORUS SULFIDE, ORGANIC SULFUR COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/0933 STEP NO--UR/0079/70/040/003/0571/0573

CIRC ACCESSION NO--AP0124593

UNCLASSIFIED

2/2 013 UNCLASSIFIED PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0124593

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. PASSING 3 G CCL SUB2 END AT MINUS 30DEGREES INTO 4 G (ETO)(ETS)PCL IN CH SUB2 CL SUB2 RESULTED IN LOSS OF COLOR AND AFTER WARMING TO ROOM TEMP. GAVE 67PERCENT ETSP(O)CL(ON:CFCL), B SUB1 99-101DEGREES, D PRIME20 1.4790, N PRIME2D SUB0 1.4979; SIMILARLY WERE PREPD. 50-65PERCENT BUSP(O)CL(ON:CFCL), B SUB2 107-8DEGREES, 1.3692, 1.4925; ETSP(O)CL(ON:CFCF SUB2 CL), B SUB0.1 57-9DEGREES, 1.5131, 1.4582; MESP(O)CL(ON:CME SUB2), UNDISTILLABLE, 1.2950, 1.5079; ETSP(O)CL(ON:CME SUB2), UNDISTILLABLE, 1.2640, 1.5052; AND (ETS) SUB2 P(O)ON:CFCL, B SUB2 108DEGREES, 1.3070, 1.5218.

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USSR

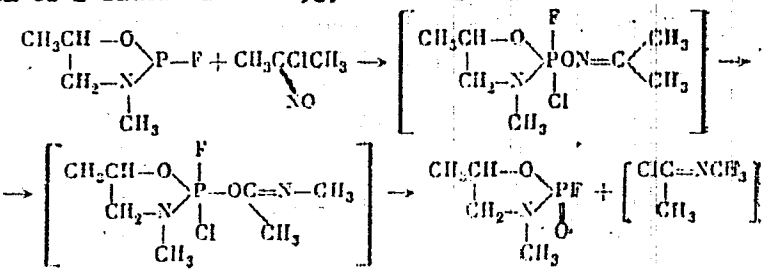
UDC 547.26'118

MALEKIN, S. I., KRUGLYAK, YU. L., MARTYNOV, I. V., and NEGREBETSKIY, V. V.

"Phosphorylated Oximes. XIII. Reaction of Fluorophospholanes With α-Monochloronitrosoalkanes. The Beckman Rearrangement"

Leningrad, Zhurnal Obshchey Khimii, Vol 42(104), Vyp 4, 1972, pp 814-816

Abstract: The reaction of the penta-coordinate phosphorous compound 2-fluoro-1,3,2-azaoxaphospholanes with α-monochloronitrosoalkanes results in the formation of 2-fluoro-2-oxo-1,3,2-azaoxaphospholane. The mechanism is as follows:



The latter reacts with water to give the corresponding amide, $CH_3\overset{O}{\overset{\|}{C}}NHCH_3$.

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USSR

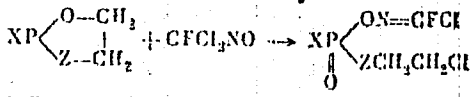
UDC 547.26'118

KRUGLYAK, YU. L., MALEKIN, S. I., and MARTYNOV, I. V.

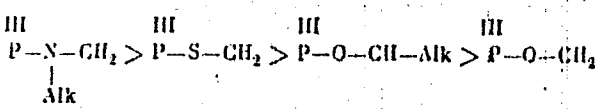
"Phosphorylated Oximes: XII. Reaction of 2-Halophospholanes With Dichlorofluoronitrosomethane"

Leningrad, Zhurnal Obshchey Khimii, Vol 42(104), Vyp 4, 1972, pp 811-814

Abstract: The general reaction for these systems can be written as



where X = Cl^- or F^- and Z = O, S, or N-alkyl. The reaction goes with the phospholane ring breaking at the C-O bond; the P-N-C and P-S-C bonds do not break. This leads to an order of decreasing stability.



Physical properties, IR and elemental analysis data are given for the nine particular compounds studied.

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USSR

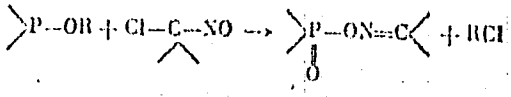
UDC 547.21'118

MALEKIN, S. I., YAKUTIN, V. I., SOKALSKIY, M. A., KRUGLYAK, YU. L., and MARTYNOV, I. V.

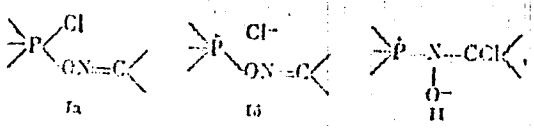
"Information on the Mechanism of the Reaction of α-Chloronitrosoalkanes With Trivalent Phosphorous Compounds"

Leningrad, Zhurnal Obshchey Khimii, Vol 42(104), Vyp 4, 1972, pp 807-811

Abstract: The general reaction for these systems is:



The intermediate (II) may be obtained via two pathways: either through a species containing a five-coordinate neutral P(Ia) or through one



containing a four-coordinate positive P(Ib). Examination of IR spectra in the

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USSR

MALEKIN, S. I., et al., Zhurnal Obshchey Khimii, Vol 42(104), Vyp 4, 1972, pp 807-811

region of C=N and N=O vibrations and of the NMR spectra of P^{31} and F^{19}, the pathway through Ia was confirmed. Thus the nucleophilic attack by the trivalent phosphorous on the positively charged chlorine atom of the dichlorofluoronitroso-methane probably occurs with a cooperative transfer of an electron to the oxygen of the nitrosyl group breaking the Cl-C bond as shown below:

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1/2 021 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--ANISOTROPY OF THE PROPERTIES OF FILLED POLYETHYLENE DURING INJECTION MOLDING -U-

AUTHOR-(04)-LISTKOV, V.M., YUZHIN, V.M., DAMINOV, YU.F., MARTYNOV, M.A.

COUNTRY OF INFO--USSR

SOURCE--PLAST. MASSY 1970, (5), 46-9

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--PLASTIC INJECTION MOLDING, POLYETHYLENE, ANISOTROPY, FILLER, MECHANICAL STRENGTH

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3006/0910 STEP NO--UR/0191/70/000/005/0046/0049

CIRC ACCESSION NO--AP0134639

UNCLASSIFIED

2/2 021 UNCLASSIFIED PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0134639

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ADDN. OF 20PERCENT TALC, MICA, OR SILICA POWDERS TO HIGH-D. POLYETHYLENE (I) DECREASES THE ANISOTROPY OF I CASTINGS. THE FILLERS REDUCE THE MOBILITY OF I MOLS. AND PREVENT THEIR ORIENTATION DURING MOLDING. ASBESTOS FILLER CAUSES SOME ALIGNMENT OF I MOLS. ALONG ITS FIBERS AND INCREASES ANISOTROPY. THESE FILLERS DO NOT INTERFERE WITH THE WORKABILITY OF I MIXES OR ITS CRYSTALLINITY. CASTINGS CONTG. THESE FILLERS HAVE NEARLY THE SAME MECH. STRENGTH AND SHRINKAGE IN ALL DIRECTIONS.

UNCLASSIFIED

USSR

UDC 669.183.4:621.745.4

LESHCHENKO, I. P., TERESHCHENKO, V. T., MARTYNOV, O. V., TRAKHIMOVICH, V. I., and BORZENKOV, D. V., Tula Branch of Central Scientific Research Institute of Ferrous Metallurgy, Novo-Tula Metallurgical Plant

"Sponge Iron for Steel Melting Production"

Moscow, Metallurg, No 7, Jul 73, pp 20-22

Abstract: Investigations at the Novo-Tula Metallurgical Plant has revealed that iron ore concentrates with a maximum concentration degree must be used for the production of sponge iron suitable for remelting in steel melting aggregates. Factors which must be considered when using sponge iron in the capacity of raw material, burden, and substitute for steel scrap, are discussed. The increase of iron content in the iron ore concentrate at maximum reduction degree of 98% leads to the growth of metallic iron in the sponge according to

$$\Delta Fe_{met}=\frac{16\Delta Fe_{init}}{9.5}$$, where ΔFe_{met}=increase

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USSR

LESCHENKO, I. P., et al., Metallurg, No 7, Jul 73, pp 20-22

of concentration of reduced metallic iron in sponge (in %), and ΔFe_{init}=increase of iron content in initial concentrate (in %). The iron sponge oxidation dependence in storage on the metallization degree is characterized by $\Delta O=9.93-0.094\varphi$, where ΔO=oxidation concentration increase in sponge iron during storage (in %), and φ=metallization degree of initial sponge (in %). The $\Delta\varphi$ dependence on the storage time in open air is illustrated. Three figures, two tables.

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AA0040664

UR 0482

Soviet Inventions Illustrated, Section I Chemical, Derwent,

1/70

240199 CONTINUOUS CASTING MOULD has two zones, top (1) and bottom (2), both profiled to suit the billet cast though in the corners of the lower zone there are downwards expanding slots (3) or grooving arranged so that the rib portions of the billet opposite these slots do not come into contact with the walls of the mould. Special jets arranged in these corners spray on water or steam for cooling purposes. The height of the two mould zones, depth and width of the slots in the lower zone are all determined by the section and casting rate of the billet. All four ribs are cooled to the same extent.

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AUTHORS: Druzhinin, V. P.; Bashkov, V. A.; and Martynov, O. V.

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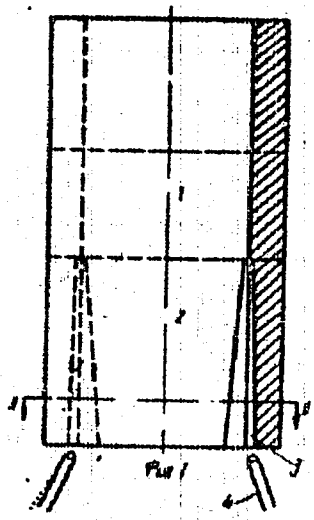

7.2.66 as 1053520/22-2. BRUZHININ.V.P.et al.(18.8.69)
Bul 12/21.3.69. Class 31 b 2. Int.Cl. B 22d.

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TYAGUNOV, G. V., KUSHNIR, M. N., MARTYNOV, O. V., NIKANOROVA, S. M., and BELOUSOV, V. A.

"Effect of Liquid Metal Characteristics on Solid Metal Properties"

Moscow, Stal', No 9, Sep 72, pp 803-806

Abstract: From an investigation of samples of steel 20 and technically pure iron (slabs 150 x 160 mm and hollow ingots 360/110 mm in diameter), it was established that the mechanical properties and electric resistance of the finished metal differed substantially from section to section. Data on the chemical composition and nonmetallic impurities in different zones cannot explain these differences. The properties of liquid metal obtained by melting samples from corresponding zones also differed substantially. It is shown that a law-governed relationship exists between the properties of the liquid metal and the mechanical characteristics of the solid metal. The vacuum treatment of liquid metal leads to an increase in density and to a modification of the viscous characteristics and probably contributes to the formation of a more micro-uniform texture.